

IN THE SPECIFICATION

On page 1, after the Title, insert:

--Cross-Reference To Related Applications

This application is a continuation of U.S. Application Serial No. 09/476,249, filed December 30, 1999, now abandoned.

IN THE CLAIMS

Please amend claim 1 as set forth below.

Please cancel claims 2-34 without prejudice.

Please add the following new claims 35- 69 as set forth below:

1. (currently amended) ~~A process for preparing a poly(arylene sulfide) polymer which comprises:~~

~~(a) pre reacting an aqueous alkali metal hydroxide with a polar organic compound at a first temperature to form a solution comprising an alkali metal aminoalkanoate;~~

~~(b) contacting the solution of step (a) with an alkali metal bisulfide and subjecting the thus formed mixture to a second temperature that is higher than said first temperature and that is sufficient to remove at least a portion of the water from such mixture; and~~

~~(c) then contacting the mixture with additional polymerization reactants comprising at least one dihaloaromatic compound under polymerization conditions~~

A method for preparing polyphenylene sulfide polymer, comprising:
reacting an aqueous metal hydroxide with a polar organic compound within a metal vessel comprising one or more of iron, chromium and nickel and within a first temperature range

to form a solution having a reaction product of the metal hydroxide and the polar organic compound;

dehydrating the solution such that at least a portion of the water is removed from the solution;

adding a sulfur source to the solution to form a mixture;

dehydrating the mixture at a temperature greater than 100° such that at least a portion of the water is removed from the mixture; and

adding one or more polymerization reactants, comprising at least one dihaloaromatic compound, to the mixture under polymerization conditions to form polyphenylene sulfide polymers, wherein the corrosiveness of at least one of the solution and the mixture to the metal vessel is such that the polyphenylene sulfide polymers comprise less than 55 ppm iron, less than 15 ppm chromium, or less than 15 ppm nickel.

2-34. (cancelled)

35. (new) The method as recited in claim 1, wherein the first temperature range is 50° to 118° C to form the solution.

36. (new) The method as recited in claim 35, wherein the temperature range is 75° to 105° C.

37. (new) The method as recited in claim 1, wherein the aqueous metal hydroxide comprises sodium hydroxide.

38. (new) The method as recited in claim 1, wherein the polar organic compound comprises N-methyl-2-pyrrolidone.

39. (new) The method as recited in claim 1, wherein the reaction product comprises N-methyl-4-aminobutanoate.
40. (new) The method as recited in claim 1, wherein the sulfur source comprises an alkali metal bisulfide.
41. (new) The method as recited in claim 1, wherein dehydrating the mixture occurs at less than 240° C.
42. (new) A method for polymerizing polyphenylene sulfide, comprising:
 reacting an aqueous metal hydroxide with a polar organic compound within a temperature range of 50° to 118° C to form a solution comprising an alkali metal aminoalkanoate;
 dehydrating the solution such that at least a portion of the water is removed from the solution;
 adding a sulfur source to the solution to form a mixture;
 maintaining the mixture at greater than 100° C, such that at least a portion of the water is removed from the mixture; and
 contacting the mixture with one or more polymerization reactants, comprising at least one dihaloaromatic compound, under polymerization conditions to form polyphenylene sulfide.
43. (new) The method as recited in claim 42, wherein the temperature range is 75° - 105° C.
44. (new) The method as recited in claim 42, wherein maintaining the mixture occurs at less than 240° C.
45. (new) The method as recited in claim 42, wherein the aqueous metal hydroxide comprises sodium hydroxide.
46. (new) The method as recited in claim 42, wherein the polar organic compound comprises N-methyl-2-pyrrolidone.

47. (new) The method as recited in claim 42, wherein the alkali metal aminoalkanoate comprises N-methyl-4-aminobutanoate.
48. (new) The method as recited in claim 42, wherein the sulfur source comprises an alkali metal bisulfide.
49. (new) The method as recited in claim 42, maintaining the mixture occurs at a pressure range from atmospheric pressure to about 30 p.s.i.g.
50. (new) The method as recited in claim 42, wherein the polyphenylene sulfide comprises less than 55 ppm iron, less than 15 ppm chromium, or less than 15 ppm nickel.
51. (new) A method for producing a pre-polymerization mixture, comprising:
 reacting an aqueous metal hydroxide with a polar organic compound at a temperature less than 118° C to form a solution comprising an alkali metal aminoalkanoate;
 dehydrating the solution such that at least a portion of the water is removed from the solution;
 adding a sulfur source to the solution to form a mixture; and
 maintaining the mixture at greater than 100° C, such that at least a portion of the water is removed from the mixture to form a pre-polymerization mixture.
52. (new) The method as recited in claim 51; wherein reacting the aqueous metal hydroxide with the polar organic compound occurs at a temperature greater than 50° C.
53. (new) The method as recited in claim 51, wherein reacting the aqueous metal hydroxide and the polar organic compound occurs within a temperature range of 75° to 105° C.
54. (new) The method as recited in claim 51, wherein maintaining the mixture occurs at less than 240° C.

55. (new) The method as recited in claim 51, wherein the aqueous metal hydroxide comprises sodium hydroxide.

56. (new) The method as recited in claim 51, wherein the polar organic compound comprises N-methyl-2-pyrrolidone.

57. (new) The method as recited in claim 51, wherein the reaction product comprises N-methyl-4-aminobutanoate.

58. (new) The method as recited in claim 51, wherein the sulfur source comprises an alkali metal bisulfide.

59. (new) The method as recited in claim 51, wherein maintaining the mixture occurs at a pressure range from atmospheric pressure to about 30 p.s.i.g.

60. (new) A method for producing polyphenylene sulfide polymers in a metal reactor vessel, comprising:

providing a reactor vessel comprising a metal surface comprising one or more of iron, chromium and nickel suitable for contacting at least a dehydrated solution of an aqueous metal hydroxide and a polar organic compound, a dehydrated mixture of the dehydrated solution and a sulfur source, and polymerization reactants comprising at least one dihaloaromatic compound; and

forming polyphenylene sulfide polymers in the reactor vessel, wherein polyphenylene sulfide polymers prepared in the metal reactor vessel contain less than 55 ppm iron, less than 15 ppm chromium, or less than 15 ppm nickel.

61. (new) A method for polymerizing polyphenylene sulfide, comprising:

placing an aqueous metal hydroxide and a polar organic compound within a metal vessel comprising one or more of iron, chromium and nickel;

degassing the metal vessel containing the aqueous metal hydroxide and the polar organic compound;

heating the vessel to a reaction temperature less than 110° C for a time interval sufficient to substantially react the metal hydroxide to form a solution comprising the polar organic solvent, water, and an alkali metal aminoalkanoate;

increasing the temperature of the vessel to at least 110° C and opening one or more vents on the vessel such that a portion of water is removed from the solution;

cooling the vessel containing the solution and closing one or more vents on the vessel;

adding a sulfur source to the vessel to form a mixture of the sulfur source and the solution;

degassing the metal vessel containing the mixture;

heating the vessel to at least 105° C and opening the one or more vents on the vessel such that a portion of water is removed from the mixture; and

adding one or more polymerization reactants, comprising at least one dihaloaromatic compound, to the mixture under polymerization conditions to form polyphenylene sulfide polymers comprising less than 40 ppm iron, less than 7 ppm chromium, or less than 9 ppm nickel.

62. (new) The method as recited in claim 61, wherein the aqueous metal hydroxide comprises sodium hydroxide.

63. (new) The method as recited in claim 61, wherein the polar organic compound comprises N-methyl-2-pyrrolidone.

64. (new) The method as recited in claim 61, wherein the vessel containing the aqueous metal hydroxide and the polar organic compound is degassed with nitrogen.

65. (new) The method as recited in claim 61, wherein the reaction temperature is approximately 100° C.

66. (new) The method as recited in claim 61, wherein the time interval is approximately one hour.

67. (new) The method as recited in claim 61, wherein the alkali metal aminoalkanoate comprises N-methyl-4-aminobutanoate.

68. (new) The method as recited in claim 61, wherein increasing the temperature of the vessel comprises increasing the temperature to between 110° and 205° C.

69. (new) The method as recited in claim 61, wherein heating the vessel comprises heating the vessel to between 105° and 205° C.